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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,532	03/08/2002	Debashis Basu	0023-0059	8887

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EXAMINER	
LIM, KRISNA	
ART UNIT	**PAPER NUMBER**
2153	

DATE MAILED: 10/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/092,532	BASU ET AL.	
	Examiner	Art Unit	
	Krisna Lim	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 7/20/05.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) 1-28 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-28 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claims 1-29 are still pending for examination.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The newly added feature that allows each of a plurality of arbiters **simultaneously** arbitrates among ...." Is not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor. In fact, the term "simultaneously" is not even mentioned in the original specification, the original claims and the drawings. The specification discloses only that those arbiters are independently (e.g., see paragraphs 39 and 40). Applicant's is reminded that when two devices independently perform functions, it does not means that these two devices simultaneously perform the functions because one device can independently operate at one time while the other device can independently operation at other time different from the one time. On the other

hand, the specification clearly states that these arbiters operated as a series of pipeline stages.

4. Claims 1-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 5, 7 and 9, it is still unclear what the applicant means by "a predetermined point in its processing" because it is unclear what kind of predetermined point is it. For example, is it a number or a threshold, or a processing state or a processing stage, or an arbitration point, etc. Moreover, it is not clear what or who predetermines this processing point. In reply, the applicant argued that the language of "a predetermined processing point is clear and definite because one of ordinary skill in the art would realize that this processing may include a number of processing points. The Examiner respectfully disagrees as mention above.

In claims 17, 22 and 28, it contains similar problems as in claims 5, 7 and 9.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negative by the manner in which the invention was made.

Claims 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brash et al. [U.S. Patent No. 5,485,586] in view of Arimilli et al. [U.S. Patent No. 6,286,068] and Mikael et al. [U.S. Publication No. 2003/0135537].

6. Brash et al. discloses (e.g., see Figs. 1-7) the invention substantially as claimed. Taking claims 1, 5, 6 and 7 as an exemplary claims, the reference discloses a system comprising: a) a plurality of arbiters that arbitrate among elements of a common resource (e.g., see col. 1 (lines 42-43), col. 7 (lines 49-50)); and b) conflict logic configured to detect conflicts among the elements of the common resource, and, when a conflict is detected, the conflict is configured to alter processing ("switching between the two priority logic sessions" at col. 7 (lines 28-45), "allows only a single grant to be issued at any instant of time so requests are queued one at a time" at col. 2 (lines 1-18)) relating to the conflict in one of the conflicting arbiters.

7. Brash et al. does not explicitly mention, "alter processing relating to the conflict in one of the conflicting arbiters". Brash et al., however, discloses that when the simultaneous requests are received, his arbiters resolve this conflict by determining the order by which the received requested are queued by allowing only a single grant to be issued at any instant of time so requests are queued one at a time and the switching between the two priority logic sessions. It would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that such teaching of Brash et al.'s as mention above would have been obviously the same teaching of "alter processing relating to the conflict in one of the conflicting arbiters" because "alter processing." would have been obviously the same of "switching between the two priority sessions ..." and "allows only a single grant to be issued at any instant of time so requests are queued one at a time."

Brash et al. disclose the a queue based arbiter to arbitrate between N devices for access to a common device and the use of two separate queues (first and second

arbiters, one is for the high priority request and the other one is for the low priority access.), and all the requests in a higher priority will be processed before requests from the a lower priority queue are serviced (e.g., see col. 2 (lines 1-25)). However Brash does not explicitly mention that his two separate queues are the first and second arbiters. Such two different arbiters are clearly taught by Mikael eta. [e.g., see arbiters arbiters 402 for handling arbitration of multiple processes simultaneously request access to a common (shared) resource (e.g., see both arbiters 402 of Fig. 6 and the abstract).

Moreover, applicant is reminded that such added language of "simultaneously" arbitrate requests is not fully disclosed in the specification and it is a new matter.

While Brash et al. discloses the use of two separate prioritized queues for granting the arbitration of the requests, Brash does not explicitly mention that the term series of pipeline stage. But such feature of arbitration in a pipeline manner is clearly disclosed by Arimilli et al. (e.g., see the abstract). Moreover, it would have been obvious to one of ordinary skill in the art to recognize that the teaching of two separate queues of Brash et al. would have been obvious a series of pipeline stages because all the requests in the low priority requests must wait until the requests of higher priority requests are done before the low priority requests could be processed.

Since all three references are directed to the feature of arbitration mechanism for handling the requests, it would have been obvious to one of ordinary skill in the art to combine the teaching of Arimilli and Mikael into Brash's queue based arbitration system so that the arbitration mechanism for simultaneously arbitrating the requests in a pipeline manner can be achieved.

8. As to claim 2, Brash et al. further disclose that the common resource is a set of queues and the elements of the common resource are individual ones of the queues

within the set (e.g., see col. 1 (line 42) to col. 2 (line 25), cols. 3-4, col. 7 (line 28) to col. 8 (line 46)).

9. As to claim 3, Brash et al. disclose the a queue based arbiter to arbitrate between N devices for access to a common device and the use of two separate queues (first and second arbiters, one is for the high priority request and the other one is for the low priority access.), and all the requests in a higher priority will be processed before requests from the a lower priority queue are serviced (e.g., see col. 2 (lines 1-25)). Because a series of pipeline stages is a series of execution stage, it would have been obvious to one of ordinary skill in the art to recognize that the teaching of two separate queues of Brash et al. would have been obvious a series of pipeline stages because all the requests in the low priority requests must wait until the requests of higher priority requests are done before the low priority requests could be processed.

10. As to claim 4, Brash et al. further disclose the first and second arbiters (first and second queues) for managing higher and lower priority requests (e.g., see col. 2 (line 1-25) and col. 7 (lines 28-35).

11. As to claim 8, Brash et al. further disclose the common resource is a FIFO queue and a head pointer of the FIFO queue to point to the next data element (e.g., see col. 3 (line 61) to col. 4 (line 10)).

12. Claims 9-27 are similar in scope as of claims 1-8, and therefore claims 9-27 are rejected for the same reasons set forth above for claims 1-8.

13. Applicant's arguments filed 7/20/05 have been fully considered but they are not deemed to be persuasive.

In the remarks, applicants argued in substance that:

a) Brash does not disclose or suggest a plurality of arbiters that each simultaneously arbitrates among common elements of a resource.

b) Brash does not disclose or suggest a plurality of arbiters.

c) Brash does not disclose or suggest a conflicted logic that is configured to detect conflicts among the plurality of arbiters.

d) Nowhere does Brash disclose or suggest that either one of a sections 252 or 254 of Brash are implemented as a series of pipeline stages.

e) Brash discloses arbitrating between higher and lower priority requests can not reasonably be said to disclose or suggest a first arbiter based on flow control and a second arbiter that arbitrates to manage congestion.

14. In response to paragraph a) above, the feature of a plurality of arbiters that each simultaneously arbitrates among elements of a resource is not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor. In fact, the term "simultaneously" is not even mentioned in the original specification, the original claims and the drawings. The specification discloses only that those arbiters are independently (e.g., see paragraphs 39 and 40). Applicant's is reminded that when two devices independently perform functions, it does not means that these two devices simultaneously perform the functions because one device can independently operate at one time while the other device can independently operation at other time different from the one time. On the other hand, the specification clearly states that these arbiters operated as a series of pipeline stages.

15. In response to paragraphs b) to d) above, Brash discloses that his arbiters are the queue based arbiters (e.g., see 250 and 254) of Fig. 6. Brash further discloses that requests are granted in the order that they are queued which is obviously a series pipeline stage to the extent of the claimed language.

16. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) days from the mail date of this letter. Failure to respond within the period for response will result in **ABANDONMENT** of the application (see 35 U.S.C 133, M.P.E.P 710.02, 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krisna Lim whose telephone number is 571-272-3956 The examiner can normally be reached on Monday to Wednesday and Friday from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess, can be reached on 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KI

October 16, 2005

KRISNA LIM
PRIMARY EXAMINER